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Claims

1. Process for forming an initial section or like component featuring a hollow interior to a final shape by means of high internal pressure in the sealed hollow interior using a medium that can flow, in particular forming until the final section comes into contact  
10 with the wall of a shape-determining space,

characterised in that,

- 15 in order to shape-form the initial section featuring at least one corner region, wall sections adjacent to the corner region are pre-shaped in a curved manner - as viewed in cross-section - counter to the direction of applied pressure, and subsequently re-shaped by applying the high internal pressure of the medium that can flow, displacing the corner region in the direction in which the pressure is applied.

- 20 2. Process according to claim 1, characterised in that in order to form an initial section featuring at least two corner regions, wall lengths running between the corner regions are pre-shaped in a curved manner - as viewed in cross-section - counter to the direction of applied pressure, and subsequently re-shaped by applying the high internal pressure of the medium that can flow, displacing the corner regions in the  
25 direction in which the pressure is applied.

3. Process according to claim 1 or 2, characterised in that a corner angle of the corner region is approximately 90°.

- 30 4. Process according to claim 1 or 2, characterised in that a corner angle of the corner region is less than 90°, preferably a corner region forming a peak.

5. Process according to claim 1 or 4, characterised in that the displacement of the corner region is performed in the direction of the middle line (N) of the corner.

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6. Process according to one of the claims 1 to 5, characterised in that the local degree of deformation of the initial section is created in the form of oversizing with respect to

the final contour of the final section by means of a dome-like, inwards pointing curvature of the section cross-section.

- 5 7. Process according to one of the claims 1 to 5, characterised in that the local degree of deformation of the initial section is created in the form of undersizing with respect to the final contour of the final section.
- 10 8. Process according to one of the claims 1 to 7, characterised in that the corner region/ regions in the initial section are thickened.
- 15 9. Process according to claim 8, characterised in that, in the regions adjacent to the corner region, the section wall is shaped with a cross-section that curves inwards.
- 20 10. Process according to claim 9, characterised in that, in the regions adjacent to the corner regions, the section wall is shaped with a cross-section that curves inwards relative to the final cross-section.
- 25 11. Process according to one of the claims 1 to 10, characterised in that the section wall of the initial section is shaped at least with one region (30) which is curved in cross-section in the form of part of a circle or part of an ellipse.
- 30 12. Process according to one of the claims 1 to 10, characterised in that the section wall of the initial section is shaped at least with one region which, in cross-section, is curved in the shape of a parabola, hyperbola-like or similar shape.
- 35 13. Process according to claim 6, characterised in that, in the case in which the initial section exhibits oversizing towards the interior of the initial section, during HIPF-forming compression is created in the direction of the periphery and compressive internal stresses are induced.
14. Process according to claim 7, characterised in that, in the case in which the initial section exhibits undersizing in the direction away from the initial section, during HIPF-forming stretching of material in the direction of the periphery is carried out and tensile internal stresses are induced.

15. Process according to one of the claims 1 to 14, characterised in that during HIPF-forming first the corner regions are pushed to the wall of the shape-giving space and then the walls of the section.
- 5 16. Section with hollow space delimited by section walls, in which two section walls define each corner region of the section cross-section, in particular initial section for carrying out the process according to at least one of the above claims, characterised in that at least one of the section walls (22<sub>n</sub>; 44<sub>n</sub> to 46<sub>n</sub>; 54, 57, 59, 61, 62) at the corner region (28<sub>n</sub>, 48<sub>n</sub>, 58) features a region (30) that is curved in cross-section.
- 10 17. Section according to claim 16, characterised by way of a polygonal cross-section, whose wall sections (22<sub>n</sub>) each exhibit the inwards curved region (30) between the corner regions (28<sub>n</sub>) (figure 6).
- 15 18. Section according to claim 16 or 17, characterised by way of a polygonal cross-section in which selected section walls (44<sub>n</sub> to 46<sub>n</sub>), connecting in each case two corner regions (48<sub>n</sub>), exhibit a curved region (30) (figure 12).
- 20 19. Section according to claim 17 or 18, characterised by way of a triangular shaped cross-section.
- 25 20. Section according to one of the claims 16 to 19, characterised in that the curved region (30) of the section wall (22<sub>n</sub>, 44<sub>n</sub> to 46<sub>n</sub>) connects up with corner regions (28<sub>n</sub>, 48<sub>n</sub>).
- 30 21. Section according to one of the claims 16 to 20, characterised by way of a thickening of the corner regions/region (28<sub>n</sub>, 48<sub>n</sub>, 58).
- 35 22. Section according to one of the claims 16 to 21, characterised in that at least one curved region (30) - part of a circle or part of an ellipse - is provided in cross-section in the wall (22<sub>n</sub>, 44<sub>n</sub> to 46<sub>n</sub>) of the initial section (16<sub>n</sub>, 38<sub>n</sub>).
23. Section according to one of the claims 16 to 21, characterised in that at least one curved region (30) - parabola shaped or hyperbola-like or similar shape - is provided in cross-section in the wall (22<sub>n</sub>, 44<sub>n</sub> to 46<sub>n</sub>) of the initial section (16<sub>n</sub>, 38<sub>n</sub>).

24. Section according to one of the claims 16 to 23, characterised in that the corner region/regions ( $28_n$ ,  $48_n$ ) of the initial section ( $16_n$ ,  $38_n$ ) is/are shaped thicker than the thickness (b) of the neighbouring section wall ( $22_n$ ,  $44_n$  to  $46_n$ ).
- 5     25. Section according to one of the claims 16 to 20, characterised by way of a curved region with a curvature (K) which is part of a circle, the arc length (y) of which is determined by the distance (e) between the flanges (34) delimiting the adjacent corner regions ( $28_n$ ,  $48_n$ ) (figure 7).
- 10     26. Section according to claim 25, characterised by way of a dimension of distance (e) between the flanges (34) made up of the length (a) of the section wall (22) less the lengths (f) of the adjacent corner regions (28, 48) and the projected length (t) of the outer surface of the flange (34) of the initial section ( $16_n$ ,  $38_n$ ) from the corresponding outer wall face of the intended final section ( $18_n$ ,  $50_n$ ).
- 15     27. Process according to claim 25 or 26, characterised in that the length (f) of the flanges (34) at the corner region ( $28_n$ ,  $48_n$ ) of the initial section ( $16_n$ ) is three to four times the average wall thickness (b) in the regions of the section walls ( $22_n$ ) adjacent to the corner region.
- 20     28. Section according to one of the claims 25 or 27, characterised by way the flange length (f) being a function of the wall thickness (b) of the section wall ( $22_n$ ,  $44_n$  to  $46_n$ ) and the angle (w) of the corner region ( $28_n$ ,  $48_n$ ) formed by it.
- 25     29. Section according to one of the claims 25 to 28, characterised in that, in the case of an initial section ( $16_n$ ) which is approximately equilateral triangle shaped in cross-section, the distance (e) between the flanges (34) is approximately three times the length (f) of the flanges.
- 30     30. Section according to one of the claims 25 to 29, characterised in that the height (h) of the crown between the curved contour (K) in the form of part of a circle and a straight line joining the flanges (34) corresponds approximately to the thickness (b) of the section wall ( $22_n$ ,  $44_n$  to  $46_n$ )
- 35     31. Section according to one of the claims 16 to 30, characterised in that the initial section ( $16_n$ ,  $38_n$ , 52) is an extruded section of a light metal alloy.